

WHAT IS CLAIMED IS:

1. An information-recording medium comprising:

an encoded-information-recording area in which encoded information, which is obtained by encoding recording information containing at least one unit of image information while changing the encoding key at the boundary between the image-information unit and a different encoding unit, is recorded; and

a key-change-information-recording area in which key-change information, which indicates whether or not a plurality of encoding keys is necessary for encoding still-image information contained in said image-information unit in said encoded information, is recorded.

2. The information-recording medium according to claim 1, wherein there is a said key-change-information-recording area for each said

image unit.

3. The information-recording medium according to claim 1 or 2, wherein

said still-image information is encoded image information for a frame.

4. The information-recording medium according to any one of claims 1 to 3, wherein

said image-information unit comprises an encoded-image-information group that contains at least said encoded-information for a frame.

5. The information-recording medium according to any one of claims 1 to 4, wherein

said image-information unit comprises a MPEG (Moving Picture Experts Group)-2TS (Transport Stream) sequence header, and the GOP (Group of Pictures) that is sent after said sequence header.

6. An information-recording apparatus comprising:

a first generation device which generates encoded information, which is obtained by encoding recording information containing at least one unit of image information while changing the encoding key at the boundary between the image-information unit and a different encoding unit; and

a second generation device which records key-change information, which indicates whether or not a plurality of encoding keys is necessary for encoding still-image information contained in said image-information unit in said encoded information.

7. The information-recording apparatus according to claim 6, wherein

there is a said key-change-information-recording area for each said image unit.

8. The information-recording apparatus according to claim 6 or 7, wherein

said still-image information is encoded image information for a frame.

9. The information-recording apparatus according to any one of claims 6 to 8, wherein

said image-information unit comprises an encoded-image-information group that contains at least said encoded-information for a frame.

10. The information-recording apparatus according to any one of claims 6 to 9, wherein

said image-information unit comprises a MPEG (Moving Picture Experts Group)-2TS (Transport Stream) sequence header, and the GOP (Group of Pictures) that is sent after said sequence header.

11. An information-reproduction apparatus that reproduces said recorded information from said information-recording medium on which an encoded-information-recording area in which encoded information, which is obtained by encoding recording information containing at least one unit of image information while changing the encoding key at the boundary between the image-information unit and a different encoding unit; and a key-change-information-recording area in which key-change information, which indicates whether or not a plurality of encoding keys is necessary for encoding still-image information contained in said image-information unit in said encoded information, are recorded; and comprising:

an encoded-information-detection device which detects said encoded information from said information-recording medium;

a key-change-information-detection device which detects said key-change information from said information-recording medium;

a decoding device which decodes said encoded information based on detected said key-change information; and

a reproduction device which reproduces the decoded said encoded information.

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12. The information-reproduction apparatus according to claim 11, wherein

there is a said key-change-information-recording area for each said image unit.

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13. The information-reproduction apparatus according to claim 11 or 12, wherein

said still-image information is encoded image information for a frame.

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14. The information-reproduction apparatus according to any one of claims 11 to 13, wherein

said image-information unit comprises an encoded-image-information group that contains at least said encoded-information for a frame.

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15. The information-reproduction apparatus according to any one of claims 11 to 14, wherein

said image-information unit comprises a MPEG (Moving Picture Experts Group)-2TS (Transport Stream) sequence header, and the GOP (Group of Pictures) that is sent after said sequence header.

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16. The information-reproduction apparatus according to any one of claims 11 to 15, wherein

5 said decoding device comprises a detection device which detects the necessary encoding keys for decoding still-image information when the detected said key-change information indicates that two or more said encoding keys are necessary in the process of decoding said encoded still-image information.

17. An information-recording method comprising:

10 a first generation process of generating encoded information by encoding recording information containing at least one unit of image information, while changing the encoding key at the boundary between the image-information unit and a different encoding unit; and

15 a second generation process of generating key-change information, which indicates whether or not a plurality of encoding keys is necessary for encoding still-image information contained in said image-information unit in said encoded information.

18. An information-reproduction method that reproduces said
20 recorded information from said information-recording medium on which an encoded-information-recording area in which encoded information, which is obtained by encoding recording information containing at least one unit of image information while changing the encoding key at the boundary between the image-information unit and a different encoding
25 unit; and a key-change-information-recording area in which key-change information, which indicates whether or not a plurality of encoding keys is necessary for encoding still-image information contained in said

image-information unit in said encoded information, are recorded; and comprising:

an encoded-information-detection process of detecting said encoded information from said information-recording medium;

5 a key-change-information-detection process of detecting said key-change information from said information-recording medium;

a decoding process of decoding said encoded information based on detected said key-change information; and

10 a reproduction process of reproducing the decoded said encoded information.

19. An information-recording program that makes a recording computer contained in an information-recording apparatus that records recording information containing at least one unit of image information
15 onto a recording medium function as:

a first generation device which generates encoded information by encoding said recording information while changing the encoding key at the boundary between the image-information unit and a different encoding unit; and

20 a second generation device which generates key-change information, which indicates whether or not a plurality of encoding keys is necessary for encoding still-image information contained in said image-information unit in said encoded information.

25 20. An information-reproduction program that makes a reproduction computer contained in an information-reproduction apparatus that reproduces said recorded information from said

information-recording medium on which an encoded-information-recording area in which encoded information, which is obtained by encoding recording information containing at least one unit of image information while changing the encoding key at the boundary between the image-information unit and a different encoding unit; and a key-change-information-recording area in which key-change information, which indicates whether or not a plurality of encoding keys is necessary for encoding still-image information contained in said image-information unit in said encoded information, are recorded;
10 function as:

an encoded-information-detection device which detects said encoded information from said information-recording medium;

a key-change-information-detection device which detects said key-change information from said information-recording medium;

15 a decoding device which decodes said encoded information based on detected said key-change information; and

a reproduction device which reproduces the decoded said encoded information.

20 21. A program-recording medium on which the information-recording program of claim 19 is recorded such that it can be read by said recording computer.

22. A program-recording medium on which the
25 information-reproduction program of claim 20 is recorded such that it can be read by said reproduction computer.